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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,668	10/31/2001	Andrew James Seeley	M00B130	2446

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The BOC Group, Inc.
Intellectual Property Department
100 Mountain Avenue
New Providence, NJ 07974

EXAMINER

MEDINA SANABRIA, MARIBEL

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 07/02/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/002,668	SEELEY, ANDREW JAMES <i>J</i>
	Examiner	Art Unit
	Maribel Medina	1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 31 October 2001.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-32 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 31 October 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>617</u> | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Irradiated Mail

The papers filed on **2/26/2002** (certificate of mailing dated **2/12/2002**) have not been made part of the permanent records of the United States Patent and Trademark Office (Office) for this application (37 CFR 1.52(a)) because of damage from the United States Postal Service irradiation process. The above-identified papers, however, were not so damaged as to preclude the USPTO from making a legible copy of such papers. Therefore, the Office has made a copy of these papers, substituted them for the originals in the file, and stamped that copy:

**COPY OF PAPERS
ORIGINALLY FILED**

If applicant wants to review the accuracy of the Office's copy of such papers, applicant may either inspect the application (37 CFR 1.14(d)) or may request a copy of the Office's records of such papers (*i.e.*, a copy of the copy made by the Office) from the Office of Public Records for the fee specified in 37 CFR 1.19(b)(4). Please do **not** call the Technology Center's Customer Service Center to inquiry about the completeness or accuracy of Office's copy of the above-identified papers, as the Technology Center's Customer Service Center will **not** be able to provide this service.

If applicant does not consider the Office's copy of such papers to be accurate, applicant must provide a copy of the above-identified papers (except for any U.S. or foreign patent documents submitted with the above-identified papers) with a statement that such copy is a complete and accurate copy of the originally submitted documents. If applicant provides such a copy of the above-identified papers and statement within **THREE MONTHS** of the mail date of this Office action, the Office will add the original mailroom date and use the copy provided by applicant as the permanent Office record of the above-identified papers in place of the copy made by the Office. Otherwise, the Office's copy will be used as the permanent Office record of the above-identified papers (*i.e.*, the Office will use the copy of the above-identified papers made by the Office for examination and all other purposes). This three-month period is not extendable.

Information Disclosure Statement

1. The following reference, EP 080370 A2 of the information disclosure statement filed on 10/31/02 has not been considered because it was considered in the IDS filed on 3/18/03.

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Drawings

2. The drawings are objected to because: The identifier "Fig. 1" should be deleted. See 37 CFR 1.84 (u) (1) "*Where only a single view is used in an application to illustrate the claimed invention, it must not be numbered and the abbreviation "FIG." Must not appear.*" Appropriate correction is required.

Specification

3. The disclosure is objected to because of the following informalities: In page 4, line 23 and page 9, lines 5 and 20 the term "Fig.1" should be changed to --The FIGURE--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claims 10-15, 19-24, and 27-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claims 10, 11, 19, 20, 27, and 28 recite the limitation "the mixture". There is insufficient antecedent basis for this limitation in the claims.

b. Claims 12, 13, 14, 15, 21, 22, 23, 24, 29, 30, 31, and 32 recite the limitation "the species". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 1, 12, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 802 370 A2 (Smith et al).

Smith et al disclose a process for the combustive destruction of noxious substances from a gas stream which comprises injecting the gas stream and added fuel gas as a mixture into a combustion zone (instantly claimed heated chamber) (See page 2, lines 36-38).

In regards to the limitation of claim 1 that reads “with sufficient oxygen to allow substantially complete combustion therein”, Smith et al disclose in the Table at page 3, that complete combustion (100% destruction) and substantially complete combustion (95 % destruction) is achieved when sufficient oxygen is injected (See examples 4, 7, and 9).

In regards to the limitation of claim 1, that reads “ wherein hydrogen is also present in the chamber as a fuel gas” Smith et al disclose in page 3, lines 10-12, that hydrogen gas may be used as a fuel gas.

In regards to claim 12, Smith et al disclose in page 2, lines 51-52 that a fuel gas concentration (i.e. hydrogen) is from 80 to 150 % of the stoichiometric amount needed for combustion by the oxygen added to the gas stream. This range clearly embraces the instantly claimed limitation of “at least the stoichiometric amount by volume in respect to the species being combusted.”

In regards to claim 16, Smith et al disclose that the reaction chamber or combustion chamber is a “substantially cylindrical steel shell” (See page 3, line 19).

No difference is seen between the instantly claimed invention and Smith et al disclosure.

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Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 10, 11, 13, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al as applied to claims 1, 12, and 16 above, and further in view of US Patent No. 5,510,093 (Bartz et al).

Smith et al apply herein as above.

In regards to claims 10 and 11, Smith et al disclose in page 2, lines 48-50, "preferably the amount of oxygen added to the gas stream and fuel gas is such that the oxygen concentration of the total gas stream injected into the combustion zone is from 10 to 40% by volume..."

Smith et al fail to disclose the amount of oxygen added as a "mixture having 10 to 150 % stoichiometric excess of oxygen over the fuel gas" and "mixture having 80 to 150 % stoichiometric excess of oxygen over the fuel gas" as instantly claimed.

Bartz et al is relied upon to teach a process for the combustive destruction of halogenated compounds with the addition of excess oxygen and a fuel to the waste gas stream. The fuel may be hydrogen (See col. 2, lines 50-52). Bartz et al teach in col. 2, lines 40-45, that "Generally, to achieve substantially complete combustion (at least 95%) combustion of the troublesome substances, the amount of excess air should be at least about 10 % more than the stoichiometric requirement to burn all the combustibles entering the combustion zone." Bartz et al clearly

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recognize that the amount of oxygen needed for the destruction of noxious substances is a result effective variable.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined by experimentation suitable oxygen amounts to be injected in the method of Smith et al such as in the instantly claimed range, since Smith et al teach that at least about 10% more than the stoichiometric requirement to burn all the combustibles entering the combustion zone is required, and since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In regards to claims 13, 14 and, 15, Smith et al disclose in col. 51-52 that a fuel gas concentration (i.e. hydrogen) is from 80 to 150 % of the stoichiometric amount needed for combustion by the oxygen added to the gas stream. However, fail to disclose that the hydrogen is present in at least twice (claim 13) and five times (claim 1s 14 and 15) of the stoichiometric amount by volume in respect of the substances being combusted.

Bartz et al is relied upon to teach in col. 6, lines 34-41, "The fist two test demonstrate the critical need of supplying fuel gas admixed with the waste stream injected into the destructive zone. The second pair of tests shows that increasing the amount of a fuel gas mixed with the waste halogenated compound stream increased the combustive destruction of halogenated compound." This clearly indicates that the concentration or amounts of fuel gas (e.g. hydrogen) added to the combustion chamber is a result effective variable.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have determined by experimentation the appropriate amounts of fuel gas

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or hydrogen to be injected in Smith et al method, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

9. Claims 17, 18, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al as applied to claims 1, 12, and 16 above, and further in view of US Patent No. 4,646,660 (Björkman et al).

Smith et al apply herein as above.

In regards to claims 17 and 25, Smith et al fail to disclose that the heated chamber is heated with electrical means.

Björkman et al teach an apparatus for the combustion of waste gases, comprising a combustion chamber surrounded by a heater, wherein the heat is supplied by electricity (See col. 3, lines 35-38).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the “foraminous burner” used to heat the combustion chamber in Smith et al method, by any other heating apparatus, such as electrical means as taught by Björkman et al, since Björkman et al teach that it is well known in the art to use electrical means for heating combustion chambers.

In regards to claims 18 and 26, Smith et al clearly disclose in page 2, lines 53-54, that “It is important that both the fuel gas and oxygen are introduced into the gas stream prior to the stream being injected into the combustion zone”.

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10. Claims 19, 20, 21, 22, 23, 27, 28, 29, 30, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al in view of Björkman et al as applied to claims 1, 12, 16, 17, 18, 25, and 26 above, and further in view of US Patent No. 5,510,093 (Bartz et al).

Smith et al in view of Björkman et al apply herein as above.

In regards to claims 19, 20, 27, and 28 Smith et al disclose in page 2, lines 48-50, “preferably the amount of oxygen added to the gas stream and fuel gas is such that the oxygen concentration of the total gas stream injected into the combustion zone is from 10 to 40% by volume...”

Smith et al in view of Björkman et al fail to disclose the amount of oxygen added as a “mixture having 10 to 150 % stoichiometric excess of oxygen over the fuel gas” and “mixture having 80 to 150 % stoichiometric excess of oxygen over the fuel gas” as instantly claimed.

Bartz et al is relied upon to teach a process for the combustive destruction of halogenated compounds with the addition of excess oxygen and a fuel to the treated gas stream. The fuel may be hydrogen (See col. 2, lines 50-52). Bartz et al teach in col. 2, lines 40-45, that “Generally to achieve substantially complete combustion (at least 95%) combustion of the troublesome substances, the amount of excess air should be at least about 10 % more than the stoichiometric requirement to burn all the combustibles entering the combustion zone.” Bartz et al clearly recognize that the amount of oxygen needed for the destruction of noxious substances is a result effective variable.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined by experimentation suitable oxygen amounts to be injected in the method of Smith et al in view of Björkman et al, such as in the instantly claimed range, since

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Smith et al teach that at least about 10% more than the stoichiometric requirement to burn all the combustibles entering the combustion zone is required, and since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In regards to claims 22, 23, 24, 30, 31 and 32, Smith et al disclose in col. 51-52 that a fuel gas concentration (i.e. hydrogen) is from 80 to 150 % of the stoichiometric amount needed for combustion by the oxygen added to the gas stream. However, fail to disclose that the hydrogen is present in at least twice (claims 22 and 30), and five times (claims 23, 24, 31 and 32) of the stoichiometric amount by volume in respect of the substances being combusted.

Bartz et al is relied upon to teach in col. 6, lines 34-41, "The fist two test demonstrate the critical need of supplying fuel gas admixed with the waste stream injected into the destructive zone. The second pair of tests shows that increasing the amount of a fuel gas mixed with the waste halogenated compound stream increased the combustive destruction of halogenated compound." This clearly indicates that the concentration or amounts of fuel gas (e.g. hydrogen) added to the combustion chamber is a result effective variable.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have determined by experimentation the appropriate amounts of fuel gas or hydrogen to be injected in Smith et al in view of Björkman et al method, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maribel Medina whose telephone number is (703) 305-1928.

The examiner can normally be reached on Monday through Friday from 7:30 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (703) 308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Maribel Medina

Examiner

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MM

June 26, 2003